

SEP 07 1990

OCCASIONAL PAPERS

**of the
MUSEUM OF NATURAL HISTORY
The University of Kansas
Lawrence, Kansas**

HARVARD
UNIVERSITY

NUMBER 138, PAGES 1-7

6 SEPTEMBER 1990

**A NEW SPECIES OF LEPTODACTYLID FROG,
GENUS *ISCHNOCNEMA*, FROM PERU**

WILLIAM E. DUELLMAN¹

Frogs of the telmatobiine leptodactylid genus *Ischnocnema* are characterized by narrow digital tips, toes without webbing, large conical subarticular tubercles, and the first finger longer than the second. These frogs are terrestrial inhabitants of humid forests in southeastern Brazil (*I. verrucosa* [Reinhardt and Lütken]) and the upper Amazon Basin in southern Colombia, extreme western Brazil, Ecuador, and Peru (*I. quixensis* [Jiménez de la Espada]) (Lynch, 1972; Duellman, 1978). Lynch (1974) named a third species, *I. simmonsii*, from the forested slopes (1830 m) of the Cordillera del Cóndor in southern Ecuador. Recent collections of amphibians from the complex system of ranges extending eastward from the northern part of the Cordillera Central in northern Peru contain specimens of an undescribed species of *Ischnocnema*, which herein is named:

Ischnocnema saxatilis, new species

Holotype.—KU (Museum of Natural History, The University of Kansas) 212556, an adult female from the Ponga de Shilcayo, about 4 km NNW of Tarapoto, 470 m (6°31'S, 76°53'W), Provincia de San Martín, Departamento de San Martín, Peru, obtained on 7 February 1989 by John J. Wiens.

¹Curator, Division of Herpetology, Museum of Natural History, and Professor, Department of Systematics and Ecology, The University of Kansas, Lawrence, Kansas 66045-2454.

Paratypes.—KU 212327 collected with the holotype; MHNSM (Museo de Historia Natural Universidad San Marcos) 8431–32 from 27 km (by road) NE of Tarapoto, 680 m; KU 212330 from 28 km (by road) NE of Tarapoto, 600 m; KU 212328–29 from 30 km (by road) SW of Zapatero (ca. 10 km NE San José de Sisa), 500 m; all from Departamento de San Martín, Peru.

Referred specimens.—All are juveniles from Departamento de San Martín, Peru: KU 209505 from the Río Cainarachi, 33 km (by road) NE of Tarapoto, 500 m; KU 212324 from 14 km (by road) ESE of Shapaja, 360 m; KU 212325 from the Río Cumbaza Valley, 9.4 km (by road) N of Tarapoto, 390 m; KU 212302–04, 212326 from the type locality.

Diagnosis.—The new species of *Ischnocnema* is large (males to 50.6; females to 63.0 mm in snout-vent length) with a habitus like that of *I. quixensis* (males to 48 mm; females to 59 mm; Duellman [1978]). The two species differ in that *I. quixensis* has many large, subconical tubercles on the dorsum, a dark brown groin, and a heavily mottled venter, whereas *I. saxatilis* has small tubercles with few scattered larger, subconical tubercles on the dorsum, a pale orange groin, and a faintly mottled venter. The known specimens of the other two species of *Ischnocnema* are much smaller (<30 mm in snout-vent length); *I. simmonsii* has a smooth dorsum with fine spicules, whereas the dorsum in *I. verrucosa* is rather evenly tuberculate. Furthermore, the venter in *I. simmonsii* is dark brown with small white spots.

Description of holotype.—An adult female with a snout-vent length (SVL) of 44.5 mm; body robust; head slightly longer than wide, its length 39.1% of SVL; snout rounded in dorsal view, bluntly rounded in profile; top of head flat; interorbital distance 90.2% of width of eyelid; canthus rostralis distinct, rounded, curving from orbit to nostrils; loreal region concave; lips rounded; narial area protruding laterally; nares directed dorsolaterally; internarial area distinctly depressed; eye large, protuberant, its length about equal to eye-nostril distance; tympanum higher than long, posteroventral to eye, separated from eye by distance equal to about $\frac{2}{3}$ length of tympanum; tympanic annulus distinct, its upper edge partially obscured by weak supratympanic fold. Forelimbs moderately slender; row of low subconical tubercles on outer edge of forearm; fingers slender, terminating in round tips lacking discs, bearing narrow lateral fringes; relative lengths of fingers $1 > 2 = 4 < 3$; fingers I and III about equal in length; webbing absent; three palmar tubercles, median largest, outer smallest (Fig. 1); subarticular tubercles large, subconical; other subconical tubercles present between palmar tubercles and basal subarticular tubercles, one each on digits I and II, two each on digits III and IV. Hind limbs moderately robust; tibia length 54.2% of SVL; foot length 52.4% of SVL; row of widely separated spicules on outer edge of tarsus; outer metatarsal tubercle subconical, about $\frac{1}{2}$ size of more elongate inner metatarsal tubercle; toes slender, terminating in rounded tips, bearing narrow lateral fringes on toes I and II; webbing absent; relative lengths of toes $1 < 2 < 3 =$

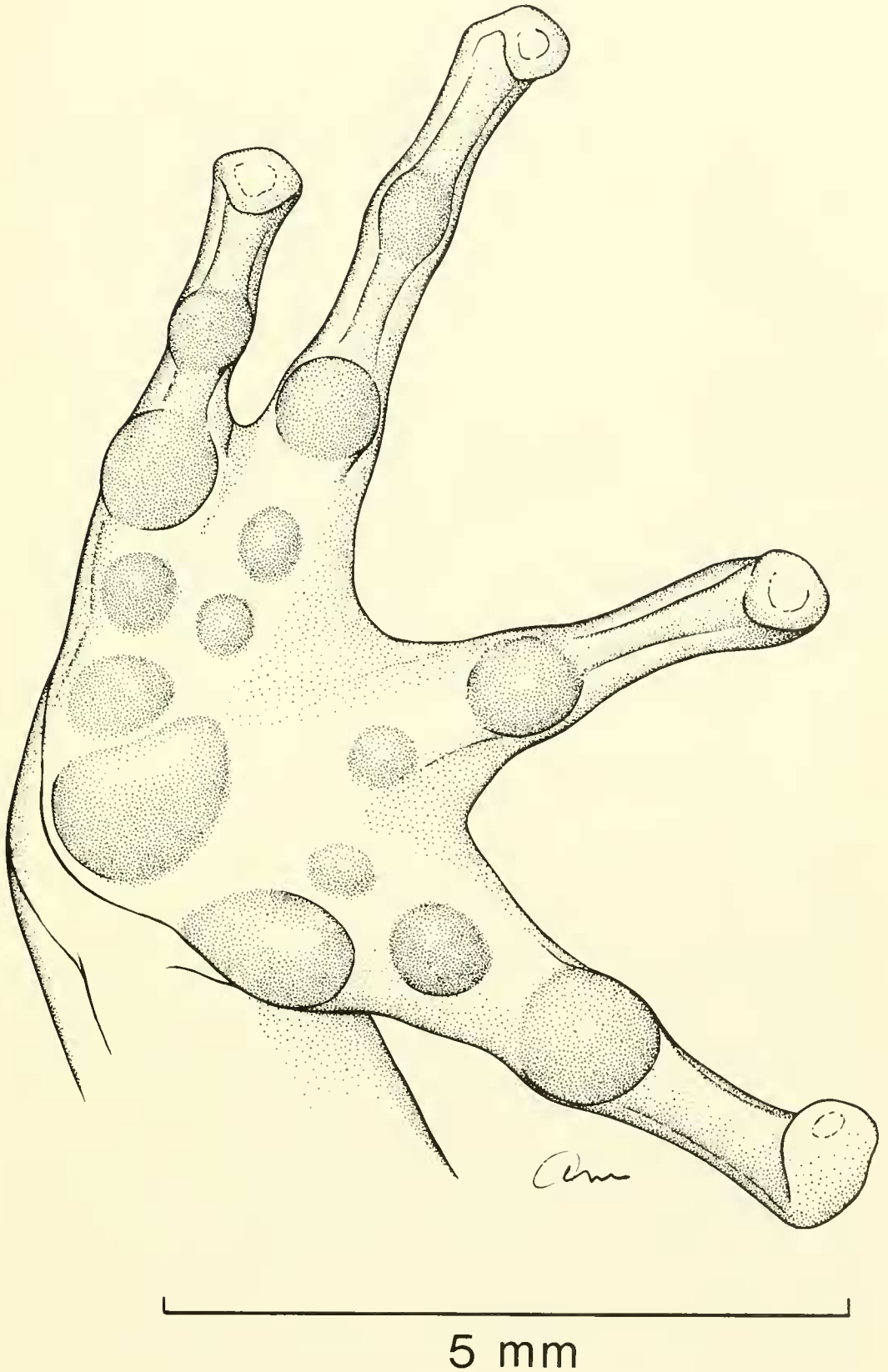


Fig. 1. Palmar view of right hand of *Ischnocnema saxatilis*, KU 212556. Bar = 5 mm.

4 < 5; subarticular tubercles large, conical; supernumerary tubercles few, large, subconical.

Skin on dorsum of head, body, and limbs finely tuberculate with scattered larger tubercles, especially in scapular region and dorsolaterally on body; large conical tubercle posteroventral to tympanum; skin on proximal posteroventral surfaces of thighs weakly granular; skin on other dorsal surfaces smooth; ventral discoidal fold present. Tongue as wide as long, deeply indented posteriorly, free posteriorly for about 40% of its length; dentigerous processes of vomers transverse, narrowly separated medially, well behind level of triangular choanae, each bearing seven teeth.

Coloration in preservative: Dorsum grayish brown with darker brown markings consisting of rectangular spot on snout from nostrils to level of eyes, triangular interorbital mark with apex on occiput, small elongate marks dorsolaterally on body, and narrow transverse marks about $\frac{1}{2}$ width of interspaces on limbs — two on forearm, one on upper arm, four on thigh, four on shank, three on tarsus, one on foot; faint transverse dark marks on digits; flanks paler grayish brown with faint gray reticulations anteriorly; two dark brown diagonal bars below eye separated by creamy tan; tympanum brown; tympanic annulus cream; margin of lower jaw gray with white spots; throat and chest pale gray with diffuse white spots; belly and ventral surfaces of forelimbs white; groin, proximal anterior surfaces of thighs, and ventral surfaces of thighs creamy yellow; posterior surfaces of thighs orange-brown.

Coloration in life: Dorsum mottled reddish tan and brown; groin orange; venter grayish white; iris bronze with black reticulations and orange tint dorsally (Fig. 2).

Measurements (in mm): SVL 44.5, tibia length 24.1, foot length 23.3, head length 17.4, head width 18.4, interorbital distance 4.1, eye diameter 5.1, eye-nostril distance 5.0, tympanum length 3.5.

Variation.—The pattern of dorsal tuberculation is essentially the same in all adults; the tubercles are not so well developed in the smaller juveniles. All individuals have a large tubercle posteroventral to the tympanum; two individuals also have a large tubercle posterior to the tympanum, and one specimen has two tubercles posterior to the tympanum.

Prominent dark, diagonal labial bars are present in all specimens; seven individuals have a bar anterior to the orbit. The dorsal pattern varies in the size of the dark markings; in one individual a dark middorsal rectangular mark is present in the scapular region. The adult male, four females, and one juvenile have more ventral pigmentation than the holotype; in these the throat and chest are more heavily mottled, and gray flecks are present at least anteriorly on the belly.

Notes taken by me on colors of living individuals reveal little variation. The groin and thighs vary from pale orange to rosy orange. The dorsum varies from pale brown to reddish brown with brown markings. One individual (KU



Fig. 2. Holotype of *Ischnocnema saxatilis*, KU 212556, 44.5 mm SVL. Photo by W. E. Duellman.

212328) had faint gray mottling on the venter. The eyes of three individuals were noted as having grayish brown triangular markings (apex toward pupil) anteriorly and posteriorly.

The measurements of one male are followed by the range and mean (in parentheses) of four females: SVL 50.6, 44.5–63.0 (51.5); tibia length 31.4, 24.1–34.3 (27.7); foot length 28.5, 23.3–32.5 (23.7); head length 19.4, 17.0–24.2 (19.3); head width 20.9, 18.4–24.2 (20.3); interorbital distance 4.5, 3.7–6.3 (4.6); eyelid width 4.8, 4.1–5.8 (5.0); eye diameter 6.5, 5.1–7.2 (6.2); tympanum length 4.0, 3.5–4.5 (4.0). Seven juveniles have snout-vent lengths of 14.1–37.0 mm (\bar{X} = 22.1).

Distribution and ecology.—*Ischnocnema saxatilis* is known from six localities at elevations of 360–600 m in the Departamento de San Martín in northern Peru (Fig. 3). All specimens were found in, or adjacent to, rocky stream beds in ravines on the slopes of mountain ridges extending eastward or southeastward from the principal north-south range of the Cordillera Central. The type locality is a stream, the Río Shilcayo, 3–5 m in width that flows through a deep, forested gorge. The type locality is accessible on foot from Tarapoto and is entered by wading the stream at the narrows (Ponga). One specimen was found on the bank of the stream at the narrows, and two others were among boulders on the forest floor upstream from the narrows. Of

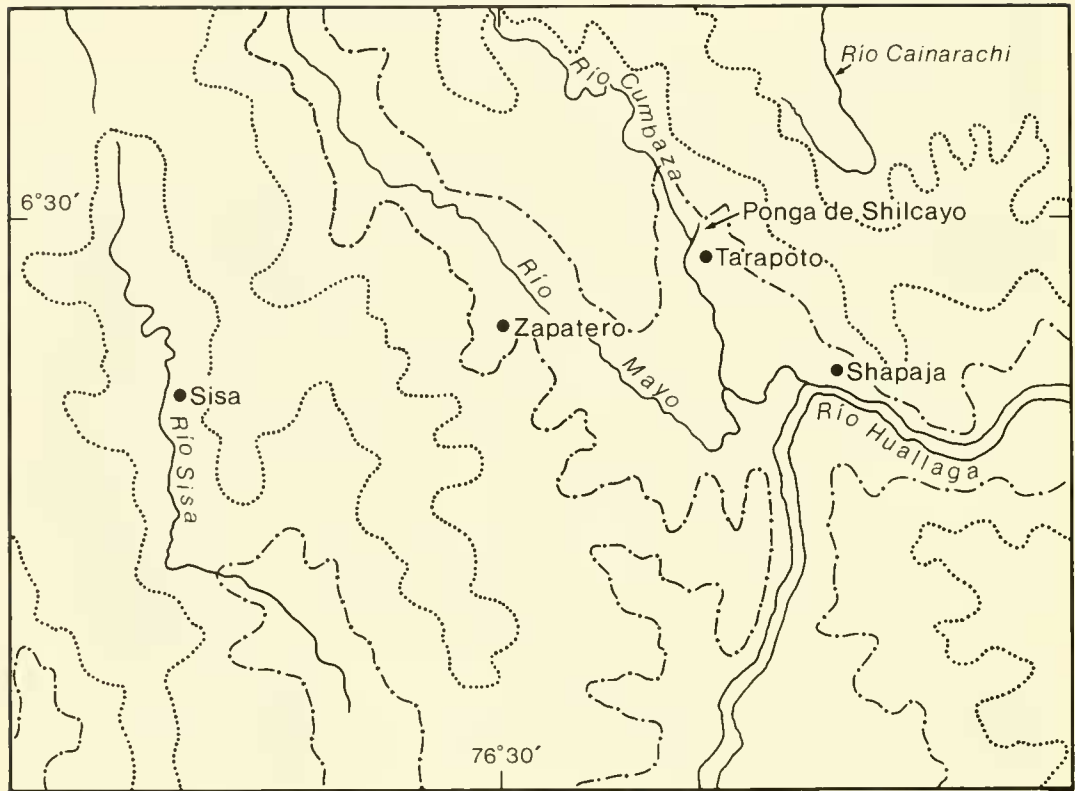


Fig. 3. Map of the Tarapoto region of Peru showing localities mentioned in the text. Dotted lines = 1000 m contour; dashed lines = 500 m contour. Based on the Mapa Físico Político Departamento de San Martín, Instituto Geográfico Nacional, Lima, Peru.

the individuals from other localities, two were perched on boulders in streams, and the others were on the ground in rocky stream beds. All were found at night. All of the females contain large, unpigmented ova.

The range of *I. saxatilis* is peripheral to, and generally, at higher elevations than, that of *I. quixensis*. Lynch and Lescure (1980) showed the range of *I. quixensis* to encompass the upper Amazon Basin from extreme southern Colombia to central Peru.

Etymology.—The specific name, *saxatilis*, is Latin meaning found among rocks and is in allusion to the habitat of the frog.

SUMMARY

A new species, *Ischnocnema saxatilis*, is named from the slopes of the Cordillera Central in the Departamento de San Martín, Peru. The new species is distinguished from *I. quixensis* by the presence of small tubercles on the dorsum, a faintly mottled venter, and a pale orange groin. *Ischnocnema saxatilis* inhabits rocky ravines at elevations of 360 to 600 m in the vicinity of Tarapoto.

RESUMEN

Se describe una nueva especie, *Ischnocnema saxatilis*, de las laderas de la Cordillera Central en el Departamento de San Martín, Perú. La especie nueva se distingue de *I. quixensis* por la presencia de tubérculos pequeños en la piel dorsal, muy poca pigmentación en las superficies ventrales, y una marca naranja en la ingle. *Ischnocnema saxatilis* habita quebradas rocosas a elevaciones de 360 a 600 m en las alrededores de Tarapoto.

ACKNOWLEDGMENTS

I am grateful to my field companions—Fernando M. Cuadros, Michael E. Morrison, and John J. Wiens—for their energetic efforts in collecting in the Andes of northern Peru. I am especially indebted to Rainer Schulte who introduced us to the fascinating herpetofauna in the vicinity of Tarapoto. The field work and subsequent laboratory studies are part of a project on patterns of speciation in Andean anurans supported by a grant (BSR 8805920) from the National Science Foundation. Permits were issued by Ing. Gonzalo Bravo Mejía Muñoz and José Purisaca of the Dirección General Forestal y de Fauna, Ministerio de Agricultura, Lima, Peru. Figures 1 and 3 were executed by Anne M. Musser.

LITERATURE CITED

- DUELLEMAN, W. E. 1978. The biology of an equatorial herpetofauna in Amazonian Ecuador. Univ. Kansas Mus. Nat. Hist. Misc. Pub. 65:1–352.
- LYNCH, J. D. 1972. Generic partitioning of the South American leptodactylid frog genus *Eupsophus* Fitzinger, 1843 (Sensu lato). Bull. S. California Acad. Sci. 71:2–11.
- LYNCH, J. D. 1974. A new species of leptodactylid frog (*Ischnocnema*) from the Cordillera del Condor in Ecuador. J. Herpetol. 8:85–87.
- LYNCH, J. D. AND J. LESCURE. 1980. A collection of eleutherodactylid frogs from northeastern Amazonian Perú with the descriptions of two new species (Amphibia, Salientia, Leptodactylidae). Bull. Mus. Natl. Hist. Nat. (4)2A:303–316.